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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,550	04/10/2006	Teruie Takemasu	2006_0522A	8964

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EXAMINER	
DEFRANK, JOSEPH S	

ART UNIT	PAPER NUMBER
3724	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/575,550	TAKEMASU ET AL.	
	Examiner	Art Unit	
	JOSEPH DEFRANK	3724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 April 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the after final arguments on 3/9/09. Claims 13-30 are pending.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the boring tool jumping and separating from the vibrator must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 13-20 and 22-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wada et al. (US 5,413,018; as previously cited; hereafter Wada '018) in view of Ishii et al. (JP 9-57696; as previously cited; hereafter Ishii) as evidenced by Wada et al. (US 5,205,147; hereafter Wada '147).

5. With respect to claim 13, Wada '018 discloses a boring device (figure 1) comprising: a boring tool (7); a guide (21) for restricting a moving direction of said boring tool; a vibrator (10) for applying vibrations to said boring tool to make said boring tool jump (as evidenced by Wada '147 column 19 line 14-column 20 line 27; see note following claim sentence), said vibrator and said boring tool being discrete members unattached to each other such that said boring tool jumps and separates from said vibrator when said vibrator applies the ultrasonic vibrations to said boring tool; and a float retention member (15) for retaining said boring tool in a floating state at a specified position, and for generating a restoration force to return said boring tool at least to a position where said boring tool contacts said vibrator (through horn 11) when said boring tool is displaced from the specified position. Examiner notes that the art of Wada '018 doesn't not specifically say that the tool will jump when vibrations are applied, however, the second reference, Wada '147 clearly states that piezoelectric frequencies are too high to allow the spring to restore the tool into constant contact with the vibrator (or the horn) because the response time of a mechanical spring is too slow; this results

in "bouncing" of the tool. This is shown in figures 22A-22C of Wada '147. Wada '018 does not specifically disclose the vibrations being ultrasonic.

Ishii discloses a punch press system where ultrasonic vibrations are transmitted to the punch in order to create a plurality of small impacts while the punch is going through the workpiece (see previously provided translated abstract). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the piezoelectric punch of Wada '018 to utilize ultrasonic vibrations in view of the teachings of Ishii in order to create a plurality of impacts at the punch site on the workpiece. Examiner notes, that the purpose of providing the vibrations to the tool of Wada '018 is to spread out the impact over a number of impacts instead of one straight through punch. Increasing the frequency merely increases the number of impacts in one through stroke.

6. With respect to claims 14-18, the modified punch of Wada '018 discloses the float retention member (15) being operable to return the boring tool to the specified position when said boring tool is displaced from the specified position, the boring device further comprising a pressing device (19a) for pressing said vibrator towards said boring tool, and the vibrator being operable to repeatedly apply the ultrasonic vibrations to said boring tool.

7. With respect to claim 20, Wada '018 discloses the boring tool comprising a punch (7) having a head and a processing portion to be applied against a workpiece (17), said guide (21) having a guide hole for guiding said head of said punch therein; see figure 1.

8. With respect to claim 19 and 22, the modified punch of Wada '018 does not disclose the punch having a spherical surface for contacting said vibrator. It would have been an obvious matter of design choice to make the different portions of the punch of whatever form or shape was desired or expedient. A change in form or shape is generally recognized as being within the level of ordinary skill in the art, absent any showing of unexpected results. *In re Dailey et al.*, 149 USPQ 47. In this case, the shape of the head of the punch is not a factor in transferring the ultrasonic vibrations from the vibrator to the punch. Any shape, as long as there is a contacting surface, will transfer the vibrations.

9. With respect to claim 23, Wada '018 discloses the boring device further comprising a die (3, 6) having a holding surface (top surface of 3, 6) for holding a workpiece (17) against said boring tool (see figure 1), said die having a boring hole extending therethrough and tapered outwardly away from said holding surface. Examiner notes that the word taper simple means "to become smaller or thinner toward one end" (per dictionary.com) and the hole of Wada '018 becomes larger towards the bottom as clearly shown by figure 1.

10. With respect to claim 24, Wada '018 discloses a boring method of boring an object (17), said method comprising: retaining a boring tool (7) in a floating state (with spring 15) at a specified position inside a guide (21) that restricts a moving direction of the boring tool; applying vibrations to the boring tool using a vibrator (10) to displace the boring tool and make the boring tool jump towards the object to be bored, the vibrator and the boring tool being discrete members unattached to each other such that the

boring tool jumps and separates from the vibrator during said applying of the vibrations to the boring tool by the vibrator (examiner notes the evidence patent of Wada '147 as explained above for disclosing the jumping of the tool); making the boring tool strike the object to be bored due, at least in part, to said applying of the vibrations; and returning the boring tool having been displaced from the specified position at least up to a position where the boring tool comes into contact with the vibrator. Wada '018 does not disclose the vibrations being ultrasonic vibrations. Ishii discloses a punch press system where ultrasonic vibrations are transmitted to the punch in order to create a plurality of small impacts while the punch is going through the workpiece (see previously provided translated abstract). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the punch of Wada '018 to create ultrasonic vibrations in view of the teachings of Ishii in order to create a plurality of impacts at the punch site on the workpiece.

11. With respect to claim 25, Wada '018 discloses the step of returning comprises returning the boring tool having been displaced from the specified position to the specified position. This is accomplished through the "return spring" (15).

12. With respect to claims 26, 28, and 29, the modified method of Wada '018 discloses applying the ultrasonic vibrations comprises repeatedly applying the ultrasonic vibrations to the boring tool.

13. With respect to claim 27, the modified method of Wada '018 discloses the method further comprising pressing the boring tool towards to the object (using press

19a) during said applying of the ultrasonic vibrations to the boring tool using the vibrator.

14. With respect to claim 30, Wada '018 does not disclose applying the vibrations on a spherical surface of the boring tool. It would have been an obvious matter of design choice to make the different portions of the punch of whatever form or shape was desired or expedient. A change in form or shape is generally recognized as being within the level of ordinary skill in the art, absent any showing of unexpected results. *In re Dailey et al.*, 149 USPQ 47.

15. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wada '018 in view of Ishii as applied to claim 20 above, and further in view of either Henderson et al. (US 6,305,258; as previously cited) or Masatoshi et al. (JP 61-033795; as cited in IDS).

Wada '018 discloses the float retention member comprising a spring (15). Wada '018 does not disclose the spring retained within said guide hole. Examiner notes that there are many configurations for springs in punch press dies. Both the art of Henderson et al. and Masatoshi et al. disclose punches having retention springs contained within the guide hole of the punch; see figure 2 of Henderson et al. and figure 1 of Masatoshi et al. All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. It would have been obvious to a person of ordinary skill in the art at the time the invention was

made to modify the guide hole and retention spring of Wada '018 to have a setup where the guide spring is located within the retention hole as taught by Henderson et al. or Masatoshi et al. This is a well known configuration in the punching arts and no new and unexpected result occurs from this sort of repositioning.

Response to Arguments

16. Applicant's arguments, see pages 2-5, filed 3/9/09, with respect to the rejection(s) of claim(s) 13 and 24 under 35 USC 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the teachings of Wada '018.

Conclusion

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSEPH DEFRANK whose telephone number is (571)270-3512. The examiner can normally be reached on Monday - Thursday; 9am-6pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer Ashley can be reached on (571) 272-4502. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason Daniel Prone/
Primary Examiner, Art Unit 3724

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5/5/09
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